



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/075,430 | 02/13/2002 | Jun Ogawa | FUJI 19.448 | 8740 |
| 7590 | 05/17/2005 | | EXAMINER | |
| Katten Muchin Zavis Rosenman 575 Madison Avenue New York, NY 10022-2585 | | | RYMAN, DANIEL J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2665 | |

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,430

Applicant(s)

OGAWA ET AL.

Examiner

Daniel J. Ryman

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 15 and 16 is/are allowed.
6) ☒ Claim(s) 1,2,7,8,13 and 14 is/are rejected.
7) ☒ Claim(s) 3-6 and 9-12 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4/27/2005 have been fully considered but they are not persuasive. On pages 12-13 of the Response, Applicant asserts that the encapsulation method suggested by Callon does not treat the network providing packets as a subordinate network. Examiner, respectfully, disagrees. Under Callon, any type B packets destined for type A nodes reachable through a type B gateway router are sent to that particular gateway router. Thus, from the viewpoint of nodes in the type B network, these type A nodes are associated with a subnetwork serviced by the gateway router. Here the address of the subnetwork would be the address of the gateway router. Thus, Examiner maintains that Callon treats the network providing packets as a subordinate network.
2. Applicant further asserts that Callon teaches away from the addressing scheme of Applicant and Hamamoto since Callon does not require an address conversion scheme. Examiner, respectfully, disagrees. Examiner acknowledges that Callon teaches encapsulation rather than address conversion; however, Hamamoto, which Callon is used to modify, does teach address conversion. Both the address conversion of Hamamoto and the packet encapsulation of Callon are methods of packet formatting that allow the routing of a packet of one type over a network of another type. Examiner relies upon Callon's teachings regarding the method of routing in a mixed network rather than the particular format of the packets. Therefore, Examiner maintains that Callon's teachings regarding routing in a mixed network are applicable regardless of whether the packet is formatted according to encapsulation or address conversion.

Art Unit: 2665

3. Further, claims 1 and 7 are broad enough to be rendered obvious by an encapsulation technique. Claims 1 and 7 only require "attaching the virtual hierarchy number." This would read on encapsulation. Therefore, Applicant's arguments regarding encapsulation are moot with respect to claims 1 and 7. However, these arguments are applicable to claims 2 and 8 since claims 2 and 8 are specific enough to require the address conversion scheme taught in Hamamoto.

4. For the above reasons, Examiner maintains the rejection of the claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 7, 8, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamamoto et al (USPN 6,038,233) in view of Callon et al (USPN 5,251,205).

7. Regarding claims 1 and 7, Hamamoto discloses a routing control method and apparatus in a mixed environment of a network of a first type (IPv6) and a network of a second type (IPv4), respectively defined by first and second address spaces (Figs. 1, 11A, and 11B and col. 1, line 17-col. 3, line 27), the first and second address spaces each having network-identifying and host-identifying portions (Figs. 1, 11A, and 11B and col. 1, line 17-col. 3, line 27) where it is implicit that the address spaces have network and host identifying portions, wherein the network of the first type provides routing control by referencing a subset of address bits of the network-identifying portion of the first address space, and the network of the second type

Art Unit: 2665

provides routing control by referencing an entirety of address bits of the network-identifying portion of the second address space (Figs. 1, 11A, and 11B and col. 1, line 17-col. 3, line 27) where it is implicit that IPv6 routes according to a subset of network identifying bits while IPv4 routes according to all network-identifying bits as defined by Applicant, comprising the steps of and means for: formatting the address space of a packet in the network of the second type as an address space of a packet in the network of the first type (Figs. 12A and 12B and col. 2, line 41-col. 3, line 27) by attaching a virtual hierarchy number (hierarchy address space is filled with nulls) to a packet to be relayed at the router when the packet is to be relayed between the network of the second type and the network of the first type (Figs. 12A and 12B and col. 2, line 41-col. 3, line 27) and removing the virtual hierarchy number from the packet to be relayed at the router when the packet is to be relayed between the network of the first type and a network of the second type (Figs. 12A and 12B and col. 2, line 41-col. 3, line 27).

Hamamoto does not expressly disclose assigning the network of the second type a virtual hierarchy number that corresponds to the subset of address bits of the network-identifying portion of the first address space and identifies the network of the second type as a network of the first type subordinate to a router for routing the packet to the network of the first type. Callon teaches as prior art that it is well known to assign a network of a second type a virtual hierarchy number (encapsulation) that corresponds to the subset of address bits of the network-identifying portion of a first address space and identifies the network of the second type as a network of the first type subordinate to a router for routing the packet to the network of the first type for performing routing control by the virtual hierarchy number within the network of the first type (col. 1, lines 5-50; col. 2, lines 15-41; and col. 3, lines 13-41) where, as broadly defined, the

Art Unit: 2665

network is “subordinate” to the router since the router controls routing of packets in the network. It would have been obvious to one of ordinary skill in the art at the time of the invention to assign the network of the second type a virtual hierarchy number that corresponds to the subset of address bits of the network-identifying portion of the first address space and identifies a portion of the network of the first type at which the network of the second type is interfaced via a router and to perform routing control by the virtual hierarchy number within the network of the first type in order to allow a packet of one protocol type to be transmitted over a network using another protocol type.

8. Regarding claims 2 and 8, referring to claims 1 and 7, Hamamoto in view of Callon discloses that an address of the network of the second type is accommodated in an interface identification information block of an address format of the network of the first type (Hamamoto: Figs. 12A and 12B and col. 2, line 41-col. 3, line 27). Hamamoto in view of Callon suggests that the virtual hierarchy number is accommodated in a hierarchy information block of the address format of the network of the first type for said routing control within the network of the first type (Hamamoto: Figs. 1, 11A, 11B, 12A, and 12B and col. 1, line 17-col. 3, line 27 and Callon: col. 1, lines 5-50; col. 2, lines 15-41; col. 3, lines 13-41). Hamamoto discloses that the IPv4 address is turned into an IPv6 address by inserting the IPv4 address into a nulled IPv6 address (Figs. 1, 11A, 11B, 12A, and 12B and col. 1, line 17-col. 3, line 27). Callon discloses attaching routing information pertaining to a first network to a packet destined from a second network to the first network in order to allow the packet to be properly routed in the first network (Callon: col. 1, lines 5-50; col. 2, lines 15-41; col. 3, lines 13-41). By inserting the routing information for the IPv6 network into the nulled packet containing the IPv4 address instead of encapsulating the

Art Unit: 2665

nulled IPv6-compatible-IPv4 with another IPv6 header, the IPv6-compatible-IPv4 packet will be formatted for routing in the IPv6 network, as Callon teaches, while using less bandwidth than would be required for encapsulation. It would have been obvious to one of ordinary skill in the art at the time of the invention to accommodate the virtual hierarchy number in a hierarchy information block of the address format of the network of the first type for said routing control within the network of the first type in order to conserve bandwidth.

9. Regarding claims 13 and 14, referring to claims 1 and 7, Hamamoto in view of Callon discloses that the network of the first type is an IPv6 network, and the network of the second type is an IPv4 network (Hamamoto: col. 1, line 17-col. 3, line 27).

Allowable Subject Matter

10. Claims 3-6 and 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not expressly disclose or fairly suggest that each router contains two routing tables, one for each type of network. Previously, Examiner maintained that each router would have two routing tables since the router would have to be capable of routing in both types of networks. However, this routing could be performed in other fashions, such as having two routers, one for each type of network, where the routers are connected with a translator or having a single routing table based on one protocol and translating all packets to that protocol before performing routing lookup. Therefore, it would not have been necessarily obvious to one of ordinary skill in the art at the time of the invention to have a single router comprising multiple routing tables.

Art Unit: 2665

11. Claims 15 and 16 are allowed. The prior art does not disclose or fairly suggest receiving routing information from a first type of network and using this information to update a routing table for the first type of network and a second type of network.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Perlman et al (USPN 5,557,745) see col. 5, lines 40-62 which detail encapsulating a packet to be routed over a "foreign protocol." Templin (PG Pub 2001/0040895) see entire document which pertains to IPv4-IPv6 compatibility. Krishnan (USPN 6,157,950) see Fig. 4; col. 3, line 17-col. 6, line 67; and col. 7, line 53-col. 8, line 24 which discloses how hierarchical routing is performed and the logical structure of IP addresses. Perlman et al (USPN 6,094,525) see entire document which pertains to network addressing arrangement for backward compatible routing of an expanded address space. Hinchey et al (USPN 5,999,541) see entire document which pertains to stripping the header of a packet conforming to a first protocol and attaching to the packet a header conforming to a second protocol in order to allow a packet conforming to the first protocol to be transmitted over a network conforming to the second protocol.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period


Art Unit: 2665

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 7:00-4:30 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 Daniel J. Ryman
Examiner
Art Unit 2665


HUY D. VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600